



Performance Database Technology for SciDAC Applications



PERI Performance Database

The PERI performance database effort is focused on forming a broadly useful repository of data/metadata related to SciDAC application performance.

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HPC Database

RENCI HPC Database is a web-based infrastructure for storing and processing performance data collected by SvPablo, a graphical environment for source code instrumentation and performance analysis for scientific applications on various HPC systems. It provides web interfaces for users to browse performance data, perform statistical analysis, conduct performance comparisons across platforms, and study the different characteristics of various existing HPC systems.

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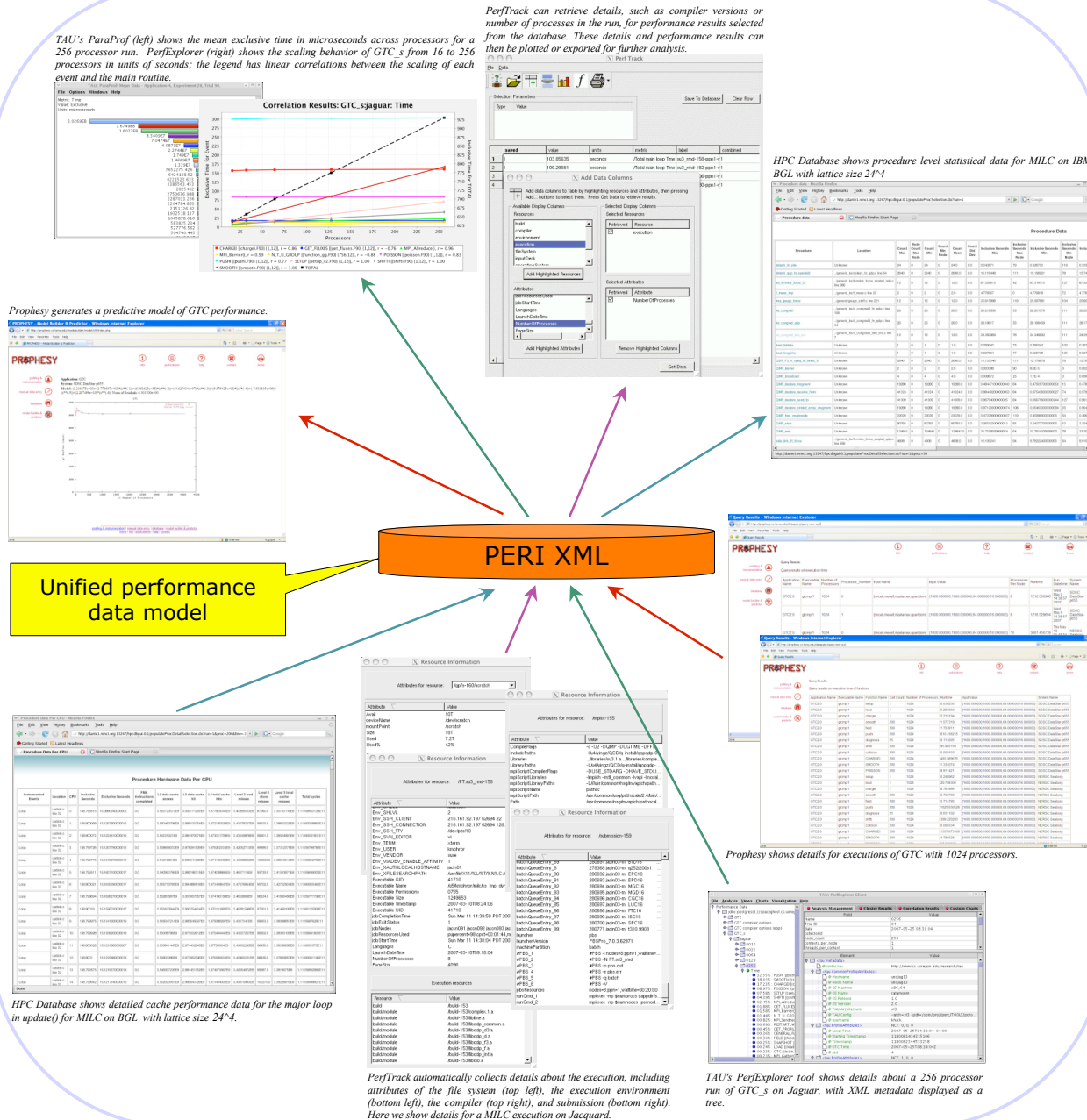
PerfTrack



PerfTrack is an experiment management tool for collecting and analyzing parallel performance data. PerfTrack comprises a data store and interface for the storage and retrieval of performance data describing the runtime behavior of large-scale parallel applications. PerfTrack uses an extensible resource type system that allows performance data stored in different formats to be integrated, stored, and used in a single performance analysis session.

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Experimental Details

The platforms we used are Jaguar, a Cray XT with 11,706 processor nodes; Jacquard, a 712-processor Linux Opteron cluster; and Ocracoke, a BG/L with 2,048 compute nodes. We show data for the applications GTC (Princeton Plasma Physics Laboratory) and MILC (MIMD Lattice Computation Collaboration).

Prophecy



Prophecy is a web-based infrastructure for the performance analysis and modeling of parallel and distributed applications. Prophecy includes a database for the archival of performance data, system features and application details, to aid in online analysis and modeling of applications. Prophecy allows for the development of linear as well as nonlinear models which can be used to predict the performance on a different compute platform.

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TAU



TAU is a portable, scalable and integrated performance system supporting all DOE HPC platforms (including IBM BG/L and Cray XT3) and all dominant programming languages, compilers, thread libraries, and communications libraries for HPC software development. TAU components include: multi-level performance instrumentation, multi-language automatic source instrumentation, flexible and configurable performance measurement, and a widely-ported parallel profiling and tracing system.

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